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PATENT COOPERATION TREATY

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Translation

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70).

Applicant's or agent's file reference B02/0673PC	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/011852	International filing date (day/month/year) 24 October 2003 (24.10.2003)	Priority date (day/month/year) 28 October 2002 (28.10.2002)
International Patent Classification (IPC) or national classification and IPC C08G 65/00		
Applicant BASF AKTIENGESELLSCHAFT		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.  
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

- This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 27 May 2004 (27.05.2004)	Date of completion of this report 28 January 2005 (28.01.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/011852

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☒ the description:  
 pages \_\_\_\_\_ 1-8 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_ 1-9 \_\_\_\_\_, filed with the letter of 11 November 2004 (11.11.2004)
- ☐ the drawings:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	7-9	YES
	Claims	1-6	NO
Inventive step (IS)	Claims	7-9	YES
	Claims	1-6	NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims		NO

## 2. Citations and explanations

- D1: SCHUBERT ET AL.: "Approach towards high molecular mass polymers via metal complexing oligomers", POLYMER REPRINTS, Vol. 42, No. 2, 2001, pages 395-396, XP009025723, mentioned in the application
- D2: SCHUBERT ET AL.: "Functional (Block) Copolymers with metal complexing segments", POLYMER REPRINTS, Vol. 41, No. 1, 2000, pages 542-543, XP009025724, mentioned in the application
- D3: SCHUBERT ET AL.: "Functionalized polymers with metal complexing segments: a simple and high-yield entry towards 2,2':6,2'-terpyridine-based oligomers", MACROMOL. RAPID COMMUN., Vol. 21, No. 16, 2000, pages 1156-1161, XP002269861
- D4: SCHUBERT ET AL.: "Makromoleküle mit Bipyridin- und Terpyridinkomplexen als Verknüpfungsstellen: erste Schritte auf dem Weg zu metallo-supramolekularen Polymeren", ANGEW. CHEM., Vol. 114, 16 August 2002 (2002-08-16)
- D5: WO94 28060 A (HENKEL CORP) 8 December 1994 (1994-12-08)
- D6: SHAY G.D.: "ALKALI-SWELLABLE AND ALKALI-SOLUBLE THICKENER TECHNOLOGY A REVIEW", ADVANCES IN CHEMISTRY SERIES, AMERICAN CHEMICAL SOCIETY,

WASHINGTON, D.C., US, Vol. 223, 1989, pages 457-494,  
XP008001247 ISSN: 0065-2393.

### Amendments

The amended claims 1-9 are allowable.

### Novelty

Claims 1-6 are not novel.

Claims 7-9 are novel.

D1 to D4 describe polymers and methods of preparing them that possess all the features of claims 1-6. They describe how high-molecular polymers are produced from bis-functionalized oligomers with a molecular weight of 8000 g/mol by the addition of transition metal ions. The term "polymers" by definition implies that the degree of polymerization  $n$  is at least 10 (and not between 2 and 10 as with oligomers), which means a molecular weight greater than 30 000. Concretely, the preparation of polymers 4, 5, 6, 11 and 12 is described and the polymerization pursued by means of viscosity measurements, etc. Until proven otherwise, it is assumed that the polymers concretely described have a molecular weight greater than 30 000 g/mol. See D1, fig. 2-7; experimental: preparation of polymers 4 and 5; D2, fig. 2-6, experimental: preparation of polymer 6; D3, pages 1158-1160, experimental: preparation of polymers 11 and 12; D4, pages 3046-3047, fig. 69 and 71. Thus, claims 1-6 are not novel.

### Inventive step

Claims 7-9 involve an inventive step.

A person skilled in the art finds nothing in the prior art that would suggest that the present polymers be used as thickeners or loose gelatinizing agents. Claims 7-9 thus involve an inventive step.

#### Industrial applicability

The subject matter of the claims has industrial applicability.